

1. (Three Times Amended) A sensor assembly²⁰ for use in an elastomeric material, the assembly comprising:
a first pair of strain sensors^(22, 24) disposed along a first pair of respective planes^(26, 28) that intersect, each of said first sensors deforming in response to a force in a first direction applied to the sensor and generating a corresponding output;
a second pair of strain sensors^(30, 32) disposed along a second pair of respective planes^(34, 36) that intersect, each of said second sensors deforming in response to a force applied to the sensor in a second direction and generating a corresponding output;
wherein the force in the first direction is equal to the difference between the outputs of said first sensors, and the force measured in the second direction is equal to the difference between the outputs of said second sensors.

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10. (Twice Amended) A three-axis sensor assembly embedded in an elastomeric material, the sensor comprising:

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a first sensing element for generating a first output indicative of a strain in the elastomeric material in a first direction applied by contact to said first sensing element;
a second sensing element for generating a second output indicative of a strain in the elastomeric material in a second direction orthogonal to said first direction applied by contact to said second sensing element;
wherein the sum of said first and second outputs is indicative of strain in a third direction orthogonal to both the first direction and the second direction.

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11. (Amended) A sensor assembly embedded in an elastomeric material, said sensor assembly comprising:

a pair of first strain sensors disposed on first opposed faces of a flexible pyramid-shaped body, said first strain sensors being deformable under a force applied by contact thereto for detecting a force in a first direction;

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wherein said first strain sensors generate corresponding output signals in response to the force in the first direction and wherein the force in the first direction is generally equal to the difference between the output signals of said first strain sensors.

30. (Twice Amended) A process of embedding a sensor in an elastomeric material, the process comprising:

D3 providing a three-axis sensor assembly including two pairs of strain gauges, a first pair disposed on first opposed faces of a pyramid-shaped body so as to detect strain applied directly to said first pair of sensors in a first direction, and a second pair disposed on second opposed faces of the pyramid-shaped body so as to detect strain applied directly to said second pair of sensors in a second direction; and

adjusting the aspect ratio of the pyramid-shaped body to a sensitivity of the three-axis sensor.

45. (Twice Amended) A process of embedding a sensor in an elastomeric material, the process comprising:

D4 providing a three axis sensor assembly including first and second pairs of strain sensors, the first pair disposed on first opposed faces of a pyramid-shaped body so as to detect strain in a first direction applied directly to the first pair of sensors, and the second pair disposed on second opposed faces of the pyramid-shaped body so as to detect strain in a second direction applied directly to the second pair of sensors; and

placing the sensor assembly in the elastomeric material when the elastomeric material is in an uncured state.

69. (Twice Amended) A three-axis sensor assembly embedded in an elastomeric material that measures strain forces on the elastomeric material, the sensor assembly comprising;

D5 a three-axis sensor assembly including two pairs of strain sensors, a first pair disposed on first opposed faces of a pyramid-shaped body so as to deform in response to strain in the elastomeric material transmitted directly to said first pair in a first direction, and a second pair disposed on a second opposed faces of the pyramid-shaped body so as to deform in response to strain in the elastomeric material transmitted directly to said second pair in a second direction;

a printed circuit responsive to the outputs of said strain sensors to generate a corresponding signal indicative of the corresponding strain acting on the elastomeric material;

and

wherein the sensor assembly is electrically coupled to the printed circuit.
